REMARKS

In the Office Action of December 14, 2005, the Examiner rejected claims 1-3, 42-43, 49- 50 and 52 under 35 U.S.C. §102(e) as anticipated by Park (6,400,685). Claim 4 was rejected under 35 U.S.C. §103(a) as being unpatentable over Park (6,400,685) in view of Hayter (5,577,035) and claim 5 under U.S.C. §103(a) as being unpatentable over Park (6,400,685) in view of Manning (5,956,342). Claims 1 and 52 have been cancelled and new claims 53 and 54 have been added. In addition, claim 42 has been amended to more particularly describe Applicants' invention in order to expedite allowance of the subject application.

Applicants' invention is directed to a scalable interconnect switch with intelligent control that can be used with electronic switches, optical switches with electronic control and fully optical intelligent switches. There are two significant requirements associated with implementing a large internet switch which are not feasible to implement using the prior art of record. First, the system must include a large, efficient and scalable switch fabric, and second there must be a global, scalable method of managing traffic moving into the fabric. In real-life conditions, global traffic management is often less than optimal, so that for a prolonged time traffic can enter the switch in such a way that one or more output lines from the switch become overloaded. Such overloading is often too severe to be handled by reasonable amounts of local buffering resulting in the need to discard some of the traffic. Therefore, in a system where upstream traffic conditions causes an overload there must be some local method to minimize this problem.

This problem is effectively handled in accordance with the invention described and claimed in the present application by monitoring of messages arriving at more than one input port. More, particularly, an input processor generates a request-to-send packet when it receives a data packet from upstream. This request packet contains priority information about the data packet. There is a request processor for each output port, which manages and approves all data flow to that output port. The request processor receives all requests packets for the output port. It determines if and/or when the data packet may be sent to the output port. It examines the priority of each request and schedules higher priority or more urgent packets for earlier transmission. During overload at the output port, it rejects low priority or low value requests. A key feature of the invention is the joint monitoring of messages arriving at more than one input port. It is not important that there is a separate logic associated with each output port or if the joint monitoring is done in hardware or software. What is important is that there exists a means for generating information concerning the arrival of a packet MA at input port A and information concerning the arrival of a packet MB at input port B to be jointly considered.

As a result of monitoring the packets arriving at input ports a request packet can harmlessly be discarded by the request processor during an impending overload at an output port. This is because the request can easily be generated again at a later time. The data packet is stored at the input port until it is granted permission to be sent to the output; low-priority packets that do not receive permission during overload can be discarded after a predetermined time. An output port can never become overloaded because the request processor will not allow this to happen. Higher priority data packets are permitted to be sent

to the output port during overload conditions. During an impending overload at an output port, low priority packets cannot prevent higher priority packets from being sent downstream.

None of the prior art references cited by the Examiner provide the ability to jointly consider information concerning the arrival of a packet MA at input port A and information concerning the arrival of packet MB at input port B prior to sending a packet to an output port.

The primary reference relied on by the Examiner is the patent to Park (6,400,685). Park is directed to a Connection Admission Control System (i.e. a switch) for an Asynchronous Transfer Mode (ATM) network. Park attempts to reduce the cell loss (i.e. packet loss) rate in his switch by calculating an equivalent bandwidth in each traffic class using a distribution function and determining a service capacity of each class in proportion to the equivalent bandwidth of each traffic class relative to the summing up of all traffic classes.

The Examiner specifically pointed to Fig. 2 in Park as support for the rejection of claims 1-3, 42-43, 49-50 and 52. However, a review of Fig. 2 and columns 3 and 4 of the Park specification shows that in Park there are messages arriving at a single switch input, which messages are divided into classes and contention between the messages of the different classes are resolved in each to enter the single switch input port. This is clearly shown in Fig. 2 where there is no control information coming from sources outside of the node logic. Information concerning the scheduling of messages to be sent into the switch from input ports other than the input port illustrated in Fig. 2 is not used in the scheduling of the messages of various classes in the single input port illustrated in Fig. 2. Rather, Park simply uses a bandwidth allocating technique to handle different message classes.

In contrast, claim 53, which replaced cancelled claim 1, specifically calls for a logic L for determining the possible scheduling of message MA to enter the interconnect structure I, with the logic L using information concerning the scheduling of one or more messages to enter I which are different than message MA. Park does not show or suggest scheduling of incoming messages by monitoring different input ports, but rather allocates bandwidth to different classes of messages arriving at the same input port. This is a significant difference, which provides significant advantages not available in Park but inherent with the technology of the present invention. Similarly, with respect to independent claim 2, Park does not show or suggest injection of a message MA into an interconnect structure based on logic associated with an output port, but simply allocates bandwidth to different classes of messages which allocation is not based on any logic associated with an output port.

Claim 42 has also been amended to point out that the incoming messages are scheduled based on the monitoring of more than one input port whereas Park does not schedule but simply allocates bandwidth.

Accordingly, it is respectfully submitted that Park, standing alone, does not anticipate the pending claims as amended and withdrawal of the rejection based on Park is respectfully requested.

The Examiner also relied on the references to Hayter and Manning in combination with Park for the rejection under 35 U.S.C. 103(a). The Hayter reference is another ATM communication system where input port servers include buffer stores, one for each of the output ports. Each buffer store in the input store servers is arranged to interrogate the output ports server with which it communicates before the transmission of date. Hayter does not

show or suggest the monitoring of all input ports to schedule data transmission to a designated output port.

The Manning reference is also directed to an ATM switch in which point-to-point transmission is optimized by determining the availability of unused bandwidth within the ATM switch. Again, this reference does not show or suggest the monitoring of multiple input ports to schedule data transmission to a designated output port.

In order for an invention to be deemed obvious, the prior art must (1) suggest the claimed invention and (2) there must be a reasonable expectation of success in the alleged combination of references. Both elements must be established in the prior art rather than in the patentee's disclosure. In re Vaeck, 947 F.2d 488, 493 (Fed. Cir. 1991). In other words, there must be a teaching or suggestion within the prior art, or within the general knowledge of a person of ordinary skill in the art, to look to particular sources of information, to select particular elements, and to combine them in a way they were combined by the inventor. Northern Telecom, Inc. v. Datapoint Corp. 908 F.2d 931, 935 (Fed. Cir. 1990). Neither the Hayter reference nor the Manning reference, either alone or in combination with Park show or suggest Applicants' invention.

Accordingly, it is respectfully submitted that all remaining claims are patentably distinct from the references of record, either alone or in combination, and passage to issue of all pending claims is respectfully requested.

Respectfully submitted,

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